MEMS Gyroscope Lifetime Characterization

Christopher Evans, Roman Gutierrez
Jet Propulsion Laboratory, California Institute of Technology
4800 Oak Grove Blvd., Pasadena, CA 91109
818-354-2737
Christopher.B.Evans@jpl.nasa.gov

Abstract

In response to the increased level of research and development in the MEMS micro-gyroscope program at the Jet Propulsion Laboratory, new methods of providing feedback to the development cycle are needed. The Device Lifetime Testbed (DLT) system proposes a solution to the long term stability and failure probability analysis of the MEMS micro-gyroscope.

The lifetime test system utilizes a standard personal computer with commercially available measurement and switching equipment to perform the data acquisition and logging required for long term analysis. Current software specifications allow for acquisition of multiple signals from a given device, temperature measurements, fault tolerance and long term data storage. Current hardware specifications allow for analysis of up to 64 devices simultaneously, as well as device isolation from the test environment.

The lifetime test system offers a cost effective and efficient method of performing long term analysis of any analog device through software and hardware abstraction.

Suggested Track: **13.4 Testing For The 21st Century Systems**
- or -
12.2 Technologies, Tools, and Applications

Word Count: 149

The research described in this paper was performed by the Center for Space Microelectronics Technology, Jet Propulsion Laboratory, California Institute of Technology, and was sponsored by the National Aeronautics and Space Administration, Office of Space Science.